



DEPARTMENT OF
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Addendum to Quality Assurance Project Plan

Sampling and Analysis Plan Soil and Groundwater Assessment: Three Tiger Oil Sites, Yakima, Washington

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Addendum

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This addendum is an addition to an original Quality Assurance Project Plan. It is not a correction (errata) to the original plan.

Data for this project will be available on Ecology's Environmental Information Management (EIM) website at www.ecy.wa.gov/eim/index.htm. Search Study ID FS58425191.

More details about this project are available at: <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=6338>

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**Addendum to
Quality Assurance Project Plan**

**Sampling and Analysis Plan
Soil and Groundwater Assessment:
Three Tiger Oil Sites, Yakima, Washington**

January 2017

Approved by:

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<u>Signature:</u> Kirk Sinclair, Author's Unit Supervisor, Environmental Assessment Program	<u>Date:</u>
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<u>Signature:</u> Tom Mackie, Section Manager for Project Study Area, Environmental Assessment Program	<u>Date:</u>
<u>Signature:</u> Joel Bird, Director, Manchester Environmental Laboratory	<u>Date:</u>
<u>Signature:</u> Bill Kammin, Ecology Quality Assurance Officer	<u>Date:</u>

Signatures are not available on the Internet version.

Note: All required sections not included in this addendum are discussed in the original Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) (GeoEngineers Inc., 2014).

3.0 Background

GeoEngineers, a consulting and engineering firm, was contracted by Ecology in 2014 to conduct soil and groundwater assessment work at three Tiger Oil sites in Yakima. GeoEngineers prepared a Sampling and Analysis Plan (GeoEngineers, 2014), which includes the Quality Assurance Project Plan, for work at the three sites. This addendum applies only to the Tiger Oil Summitview property located at 5511 Summitview Ave.

The Summitview site operated as a retail gasoline station and convenience store until closure in 2001. In 2005, three underground storage tanks (USTs) were decommissioned and removed. Following the collection of soil samples from the limits of the excavations, the tank pits were backfilled with imported fill. Soil sample results showed gasoline-range petroleum hydrocarbons (GRPH), benzene, toluene, ethylbenzene, xylenes (BTEX), and lead at concentrations exceeding (not meeting) Model Toxics Control Act (MTCA) Method A cleanup levels.

The 2014 assessment conducted by GeoEngineers was designed to confirm the presence and extent of contamination identified during the 2005 UST removal. The work included advancing 26 direct-push borings, collecting soil and groundwater samples from the temporary borings, installing five groundwater monitoring wells, and conducting quarterly groundwater monitoring for one year. Groundwater samples were collected for four consecutive quarters from three of the site's monitoring wells (SVMW-1, SVMW-2, SVMW-3) and during a single sampling event in May 2015 from two additional wells (SVMW-4, SVMW-5) installed in 2015.

GRPH, BTEX, and naphthalene were detected at concentrations exceeding MTCA Method A cleanup levels during all four monitoring events from well SVMW-3, which is located slightly downgradient of the former tank location (Figure 1). Contamination was not detected in groundwater samples from the off-site downgradient well SVMW-2. There have been no exceedances of MTCA Method A cleanup levels for groundwater beyond the property boundaries.

4.0 Project Description

Ecology's Toxics Cleanup Program (TCP) has determined a No Further Action (NFA) status is appropriate at the Tiger Oil Summitview site as long as specific contingencies are followed. One of the contingencies is to monitor groundwater quality downgradient of the site. TCP has requested that Ecology's Environmental Assessment Program (EAP) collect groundwater quality data to ensure the site stays in compliance with the conditions of the NFA determination.

4.1 Project goal

The project goal is to collect groundwater quality data for GRPH, BTEX, and naphthalene that are representative of groundwater conditions downgradient of the site.

4.2 Project objective

The project objective is to monitor groundwater quality in downgradient well SVMW-2 on an annual basis for five years beginning in the fall of 2016. Well SVMW-2 is located approximately 75 feet south of well SVMW-3 (Figure 1).

4.3 Information needed

Groundwater data are needed to determine if the site stays in compliance with these conditions of the NFA (Newschwander, 2016):

- If MTCA Method A cleanup levels are exceeded during any monitoring event, a follow-up event will be conducted. If cleanup levels are exceeded in the follow-up event, the NFA determination will be rescinded and additional remediation may be required.
- If MTCA Method A cleanup levels are not exceeded during any of the five annual monitoring events, groundwater monitoring will be discontinued at the site.

5.0 Organization and Schedule

Staff	Title	Responsibilities
Jeff Newschwander Toxics Cleanup Program Central Regional Office Phone: 509-454-7842	EAP Client	Clarifies scope of work. Provides review and final approval of addendum.
Pam Marti GFFU Unit, SCS, EAP Phone: 360-407-6768	Project Manager/Principal Investigator/Licensed Hydrogeologist	Writes the addendum. Oversees field sampling and transportation of samples to the laboratory. Conducts QA review of data, and enters data into EIM. Writes data summary memo.
(Varies per sampling event)	Field Assistant	Helps collect samples, and records field information.
Liz Pomeroy Hogback Development Co. Phone: 509-834-2243	Property Owner	Provides access and information regarding site property.
Martha Maggi GFFU Unit, SCS, EAP Phone: 360-407-6453	Unit Supervisor for the Project Manager	Reviews and approves the final addendum.
Jessica Archer SCS, EAP Phone: 360-407-6698	Section Manager for the Project Manager	Reviews the project scope, tracks progress, and reviews and approves the final addendum.
Tom Mackie Eastern Operations Section EAP Phone: 509-454-4244	Section Manager for the Study Area	Reviews the project scope, tracks progress, and reviews and approves the final addendum.
Joel Bird MEL, EAP Phone: 360-871-8801	Director	Reviews and approves the final addendum.
Ginna Grepo-Grove MEL, EAP Phone: 360-871-8829	Data and Quality Assurance Reviewer	Reviews quality of lab data packages.
William R. Kammin EAP Phone: 360-407-6964	Ecology Quality Assurance Officer	Reviews and approves the final addendum.

EAP: Environmental Assessment Program
EIM: Environmental Information Management database
GWFF: Groundwater Forests & Fish Unit

MEL: Manchester Environmental Laboratory
QAPP: Quality Assurance Project Plan
SCS: Statewide Coordination Section

5.4 Proposed project schedule

Field and laboratory work	Due date	Lead staff
Field work completed	October, annual	Pam Marti
Laboratory analyses completed	November, annual	
Environmental Information System (EIM) database		
EIM Study ID	FS58425191	
Product	Due date	Lead staff
EIM load, QA and complete	January, annual	Pam Marti
Data Summary Memo		
Author lead / support staff	Pam Marti	
Schedule		
Draft due to supervisor	January, annual	
Final (all reviews done) due to publications coordinator	February, annual	
Final Technical Memo to client	February, annual	
Final Technical Memo to SharePoint	February, annual	

5.6 Budget and funding

Analytical costs for this project are estimated to be \$500 annually which will be paid by TCP.

6.0 Quality Objectives

This section is discussed in detail in the Quality Assurance Project Plan prepared by GeoEngineers (2014).

7.0 Study Design

7.2.1 Sampling location and frequency

Groundwater samples will be collected annually for five years from monitoring well SVMW-2 beginning in the fall of 2016.

8.0 Field Procedures

Before sampling, the project manager will notify the property owner. Refer to Section 5.0 for contact information.

Groundwater sampling procedures will follow those outlined in the Site specific SAP (GeoEngineers, 2014) and Ecology’s SOPs EAP052 (Marti, 2009) and EAP078 (Marti, 2011). All the above guidance follow industry standard procedures.

9.0 Laboratory Procedures

Standard methods and reporting limits used for analysis of all groundwater samples are as follows. Samples will be analyzed by Ecology’s Manchester Environmental Laboratory (MEL).

Laboratory Analytes	Matrix	Expected Range of Results	Method	Method Detection Limit
TPH-Gx (GRPH)	Groundwater	< 0.1 mg/L	NWTPH-Gx	0.1 mg/L
BTEX & Naphthalene	Groundwater	< 0.1 – 2 ug/L	EPA SW-846 Method 8260	1 - 2 ug/L

10.0 Quality Control Procedures

This section is discussed in detail in the Quality Assurance Project Plan prepared by GeoEngineers (2014).

11.0 Management Procedures

Data management will follow procedures discussed in Ecology’s SOP EAP078 (Marti, 2011) and MEL’s *Lab Users Manual* (Ecology, 2016). All final project data will be stored in Ecology’s Environmental Information Management (EIM) systems under the Study ID FS58425191.

12.0 Audits and Reports

An annual data summary Technical Memo will be provided to the client, based on the proposed project schedule.

13.0 Data Verification

Data verification will follow procedures discussed in MEL’s *Lab User’s Manual* (Ecology, 2016).

14.0 14.0 Data Quality (Usability) Assessment

After the data have been reviewed, verified, and validated, the project manager will determine if the data can be used toward the project goals and objectives. Validated analytical data will be shared with the TCP site manager in a data summary Technical Memo.

15.0 15.0 References

Ecology, 2016. Manchester Environmental Laboratory *Lab Users Manual*, Tenth Edition. Manchester Environmental Laboratory, Washington State Department of Ecology, Manchester, WA.

GeoEngineers, Inc., 2014. Sampling and Analysis Plan Soil and Groundwater Assessment. Three Tiger Oil Sites, Yakima, Washington. GEI File No. 0504-101-00, April 15, 2014.

GeoEngineers, Inc., 2015. Phase II Site Assessment Report – Revision 1. Tiger Oil - Summitview, Yakima, Washington. GEI File No. 0504-101-02, October 20, 2015.

Marti, P., 2009. Standard Operating Procedure for Manual Well-Depth and Depth-to-Water Measurements. Washington State Department of Ecology SOP EAP052. 31 p.
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Marti, P., 2011. Standard Operating Procedure for Purging and Sampling Monitoring Wells. Washington State Department of Ecology SOP EAP078. 34 p.
www.ecy.wa.gov/programs/eap/quality.html

Newschwander, J., 2016. Department Decision Recommendation: Tiger Oil Summitview, Yakima, Washington. Toxics Cleanup Program, Washington State Department of Ecology, Central Regional Office, Yakima, WA.

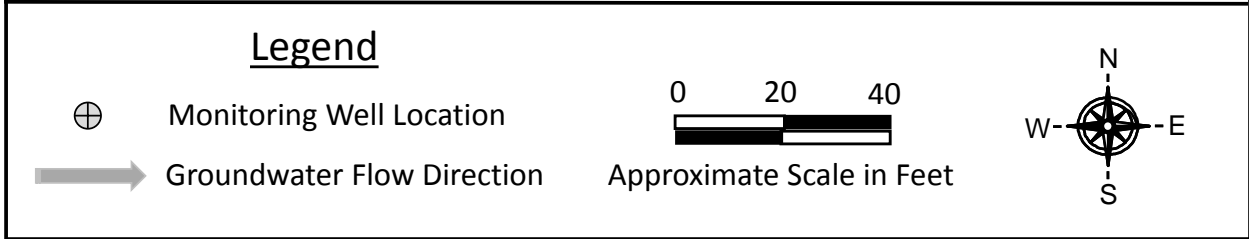


Figure 1. Project study area and sample locations.